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Cancel Claims 1-32

Add Claims 33-65

33. (New) A method for performing a power saving operation for communication terminals in a communication system corresponding to a wireless system providing a packet switching with a master station that may be a communication terminal, that sends out messages for the communication terminals in a frame-structured announcement channel, and that receives messages from the communication terminal in a return channel, the method comprising the steps of:

allocating to the communication terminals at least a first operating mode and a second operating mode, the first operating mode defining an active phase, each one of the communication terminals placed in the active phase monitoring each announcement on the announcement channel, and the second operating mode defining a sleep phase in which the announcement channel is monitored only at intervals;

causing the master station to send synchronization information including at least one frame symbol in order to synchronize the communication terminals; and

causing the communication terminals to analyze the synchronization information including the at least one frame symbol at least in intervals in the first operating mode, the synchronization information correcting respective time bases of the communication terminals.

34. (New) The method of claim 33, wherein:

a third operating mode defines a standby phase in which the announcement channel is periodically monitored in previously defined time windows and at least one system component of one of the communication terminals is deactivated and,

in the second operating mode at least one more system component is deactivated, and

a reactivation time in the second operating mode is longer than a reactivation time in the third operating mode.

35. (New) The method of claim 33, wherein each communication terminal set to go into one of the second operating mode and the third operating mode sends a corresponding message to the master

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station and notifies the master station when the communication terminal sending the corresponding message will log on next.

36. (New) The method of claim 35, wherein one of a transition from the first operating mode to one of the second operating mode and the third operating mode and a transition from the third operating mode to the second operating mode is implemented only when a confirmation is received from the master station.

37. (New) The method of claim 33, wherein a period of time for which one of the communication terminals goes into one of the second operating mode and the third operating mode is negotiated between the master station and the one of the communication terminals as a function of traffic parameters of connections.

38. (New) The method of claim 33 wherein times in which the communication terminals monitor the announcement channel are one of:

defined by the master station in a fixed manner, and
reported by the communication terminals to the master station and confirmed by the master station.

39. (New) The method of claim 33, wherein:

a transition from one of the second operating mode and the third operating mode to the first operating mode is performed only when the master station has notified a corresponding one of the communication terminals that the master station has data packets for the corresponding one of the communication terminals, and

during the transition, the master station also notifies the corresponding one of the communication terminals when the data packets are to be received.

40. (New) The method of claim 33, wherein:

a transition from one of the second operating mode and the third operating mode to the first operating mode is performed only when one of the communication terminals is to send at least one data packet to the master station,

during the transition, the one of the communication terminals accesses the return channel and notifies the master station that the one of the communication terminals is to enter into the first operating mode and that the one of the communication terminals has something to transmit, and

during the transition, the master station confirms a change to the first operating mode in the announcement channel and notifies the one of the communication terminals when the one of the communication terminals may transmit.

41. (New) The method of claim 34, wherein a transition from the third operating mode to the second operating mode is performed when one of the communication terminals has been in the third operating mode for a long time and a permissible traffic characteristic exists,

the one of the communication terminals notifies the master station at which intervals the one of the communication terminals is monitoring the announcement channel, and

the transition occurs only after confirmation by the master station.

42. (New) The method of claim 33, wherein:

a fixed wake-up time is stipulated for a transition from the second operating mode to the first operating mode,

after the fixed wake-up time, one of the following is performed:

the master station allocates a capacity in the announcement channel to a corresponding one of the communication terminals, and

the corresponding one of the communication terminals sends a return message to the master station in the return channel after wake up.

43. (New) The method of claim 33, wherein the at least one frame symbol is sent at a start of a frame and is detected independently of a remaining signal processing.

44. (New) The method of claim 33, wherein a transition from one of the second operating mode and the third operating mode to the first operating mode is performed by sending a mark like the announcement channel, the mark differing in form from another mark belonging to the announcement channel.

45. (New) The method of claim 33, further comprising the step of:

causing the synchronization information including the at least one frame symbol to send messages to the communication terminals in at least one of the second operating mode and the third operating mode.

46. (New) The method of claim 45, further comprising the step of:

inverting the synchronization information including the at least one frame symbol for transmission of messages.

47. (New) The method of claim 35, wherein:

messages in the synchronization information including the at least one frame symbol include wake-up symbols for each communication terminal in at least one of the second operating mode and the third operating mode, and
a signal inversion is performed for each new wake-up process.

48. (New) The method of claim 33, further comprising a performance of one of the steps of:

reporting times during which one of the communication terminals is to remain in one of the second operating mode and the third operating mode are reported to the master station; and

stipulating that the one of the communication terminals can access a random access channel as soon as the one of the communication terminals is ready for operation.

49. (New) The method of claim 33, wherein wake-up times correspond to times needed by one of the communication terminals for a transition to the active phase, and the wake-up times are reported to the master station during one of a negotiation of the sleep phase and an association of the one of the communication terminals.

50. (New) The method of claim 33, wherein wake-up times correspond to times needed by one of the communication terminals for a transition to the active phase and are defined as system parameters as a function of the sleep phase.

51. (New) The method of claim 33, further comprising the steps of:

suppressing a transmission of a duration of the sleep phase when certain ones of the communication terminals are reactivated exclusively by corresponding wake-up symbols;
and
sending the corresponding wake-up symbols when data is present for one of the communication terminals.

52. (New) The method of claim 33, further comprising the steps of:

dynamically adapting a duration of the sleep phase to a user behavior; and
adjusting the duration as a function of user stipulations.

53. (New) The method of claim 52, further comprising the step of:

lengthening the sleep phase successively when one of the communication terminals is one of used only sporadically and has not been used for a long time, a lengthening being defined as the sleep phase having an overall increase over time.

54. (New) The method of claim 52, further comprising the step of:

lengthening the sleep phase in favor of a longer battery lifetime of the communication terminals.

55. (New) The method of claim 33, wherein

a transition to the sleep phase takes place without signaling in an operation having an approximately constant data rate, and

a transition to the active phase takes place without a prior analysis of a wake-up symbol.

56. (New) The method of claim 33, further comprising the step of:

distributing bursty data traffic over time to reduce signaling resources needed.

57. (New) The method of claim 33, further comprising the steps of:

dividing the communication terminals into different categories; and

causing the master station to inform the communication terminals belonging to one of the different categories to monitor one transmission frame out of a number of transmission frames.

58. (New) The method of claim 33, further comprising the steps of:

dividing the communication terminals into different categories; and

causing the master station to allocate different service qualities as a function of the different categories.

59. (New) An arrangement for performing a power saving operation of a communication terminal for a wireless communication system having packet switching, the arrangement comprising:

a decision circuit by which a synchronization of the terminal can be controlled with respect to synchronization information including frame symbols received from a master station, the decision circuit assuming a control of the terminal from an actual controller of the terminal when the terminal goes from an active first operating mode into another operating mode corresponding to one of a second operating mode including a standby mode and a third operating mode including a sleep mode;

a timer device capable of being controlled by the decision circuit and for opening a time window for receiving the synchronization including the frame symbols when the synchronization information including the frame symbols is expected, the received synchronization information being useable to correct a time base of the terminal; and

a counter for counting an occurrence of announcements on an announcement channel to which the terminal has access and, depending on a count of the announcements, for checking whether the terminal must monitor the announcement channel and must activate system components required to monitor the announcement channel.

60. (New) The arrangement of claim 59, wherein:

the counter can be reset, if the counted announcements do not match a predetermined counter reading, the counter allowing the terminal to remain in one of the second operating mode and the third operating mode, and

if the counted announcements match the predetermined counter reading, a control signal can be transmitted from the decision circuit to the actual controller of the terminal to cause the system components to be activatable for receiving further announcements on the announcement channel and to cause the further announcements to be analyzable.

61. (New) The arrangement of claim 59, wherein a clock rate of the timer device can be analyzed for synchronization purposes if there has been no detection of the synchronization information including the frame symbols.

62. (New) The arrangement of claim 59, wherein more than one received instances of synchronization information including the frame symbols are averaged to produce an average over time for correcting the time base of the terminal, a correction for the time base of the terminal being processed from the average.

63. (New) The arrangement of claim 59, further comprising:

a plurality of detection devices for normal instances of the synchronization information including the frame symbols and for inverted instances of the synchronization information including the frame symbol.

64. (New) The method of claim 44, wherein the mark includes 1-bit information.

65. (New) The method of claim 45, wherein the messages include 1-bit information.